

What is claimed is:

1 1. A voltage reference generator for generating an
2 output voltage at an output node, comprising:

3 a level shifter for shifting a first reference voltage into
4 the output voltage at the output node according to a shift
5 between the first reference voltage and the output voltage; and
6 a feedback circuit for monitoring the output voltage and
7 a second reference voltage to control the shift and to normalize
8 the output and second reference voltages.

1 2. The voltage reference generator as claimed in claim
2 1, wherein the level shifter includes a source follower coupled
3 between a voltage source and the output node, the source follower
4 having an input node for receiving the first reference voltage.

1 3. The voltage reference generator as claimed in claim
2 2, wherein the source follower has an MOS transistor having a
3 drain connected to the voltage source, a source as the output
4 node and a gate as the input node, and further having a current
5 source controlled by the feedback circuit and connected to the
6 source of the MOS transistor.

1 4 The voltage reference generator as claimed in claim
2 3, wherein the MOS transistor is a NMOS transistor.

1 5. The voltage reference generator as claimed in claim
2 3, wherein the MOS transistor is a PMOS transistor.

1 6. The voltage reference generator as claimed in claim
2 3, wherein the current source is an MOS transistor having a drain

3 connected to the output node, a source connected to a ground,
4 and a gate connected to the output of the differential amplifier.

1 7. The voltage reference generator as claimed in claim
2 3, wherein the level shifter further comprises a constant
3 current source coupled between the output node and another
4 voltage source.

5 8. The voltage reference generator as claimed in claim
6 6, wherein the MOS transistor is a NMOS transistor.

1 9. The voltage reference generator as claimed in claim
2 6, wherein the MOS transistor is a PMOS transistor.

1 10. The voltage reference generator as claimed in claim
2 1, further comprising a low-pass filter to filter out a high
3 frequency portion of the first reference voltage and direct the
4 first reference voltage to the level shifter.

1 11. The voltage reference generator as claimed in claim
2 10, wherein the low-pass filter comprises at least a capacitor
3 connecting an input node of the level shifter and a voltage
4 source.

1 12. The voltage reference generator as claimed in claim
2 1, wherein the feedback circuit has a differential amplifier
3 with an inverted input, a non-inverted input and an output, the
4 non-inverted input coupled to the output node, the inverted
5 input coupled to the second reference voltage, and the output
6 coupled to a current source in the level shifter to control the
7 shift of the level.

1 13. The voltage reference generator as claimed in claim
2 12, wherein the feedback circuit further has a low-pass filter
3 connected between output of the differential amplifier and
4 current source in the level shifter.

1 14. The voltage reference generator as claimed in claim
2 1, further comprising a voltage divider to provide the first
3 reference voltage and a third reference voltage.